Air Quality Permitting
Statement of Basis

December 21, 2005

Permit to Construct No. P-050124

Norm's Utility Contractor, Inc.
Portable

Facility ID No. 777-00371

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AIR QUALITY DIVISION

PROPOSED FOR PUBLIC COMMENT

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Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
BACT	Best Available Control Technology
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/day	pounds per day
lb/hr	pounds per hour
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SIP	State Implementation Plan
SM	Synthetic Minor
SO_2	sulfur dioxide
T/yr	tons per year
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

Norm's Utility Contractor, Inc. operates a portable ready-mix concrete plant. Aggregate is stored in stockpiles. Aggregate, sand, and coarse material are dumped into an aggregate storage bin. When batching begins, an aggregate batcher is used to measure the desired amount of aggregate from each bin. The aggregate is heavily wetted for better mixing and to minimize fugitive dust prior to being dropped onto a conveyor. The aggregate is transferred by conveyor to a truck for in-transit mixing or a central mix drum for mixing onsite.

As the aggregate is being conveyed to the truck or central mix drum, cement and flyash are also measured and mixed in a batcher that has a dust collector. From the batcher, the cement/flyash mixture is conveyed by a covered screw conveyor to be added to the aggregate at the truck/drum loading location. The cement and flyash are stored in covered silos with pipe fill systems. The silos have an exhaust fan for air exchange that are used during the filling process. The silos are equipped with dust collectors.

Water is added to the truck or central mix drum with the aggregate and cement/flash for the concrete mix. A baghouse is located at the loading transfer point to capture particulate-dust emitted during the loading process. The ready-mix plant consists of an aggregate storage bin, batcher, silos, and conveyors, all supplied as one portable unit. Electric power is supplied to the ready-mix plant from the local power grid. Emergency back-up power is provided by a Caterpillar generator operating on No. 2 diesel fuel.

3. FACILITY / AREA CLASSIFICATION

Norm's Utility Contractor, Inc. is not a designated facility as defined in IDAPA 58.01.01.006.27 and not a major facility as defined in IDAPA 58.01.01.006.55 and IDAPA 58.01.01.008.10. The AIRS classification is "SM" because the potential emissions of PM_{10} are greater than major source levels and are limited by hours of operation to 5.6 tons per year. The facility's Standard Industrial Classification Code (SIC) is 3273, which refers to an establishment that is primarily engaged in manufacturing portland cement concrete, including ready mixed concrete.

The Norm's Utility Contractor, Inc. facility is a portable facility and can relocate in attainment areas within the state. A relocation form must be competed and submitted to DEQ prior to any relocations.

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at Norm's Utility Contractor, Inc. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

Norm's Utility Contractor, Inc. originally applied for this permit to construct under the name, "Hap Taylor and Sons, Inc." This change was made after the 15-day approval and opportunity for public comment, and prior to the issuance of the draft permit.

Norm's Utility Contractor, Inc. is proposing to commence construction of a portable concrete batching facility. The facility is requesting a PTC be issued to cover the operations of the concrete batching facility in an attainment area. The concrete batch plant's maximum hourly throughput is 300 cubic yards per hour (300 cy/hr). Electricity is supplied to the facility by the local utility. The facility includes a 320-kilowatt (320-kW), No. 2 diesel-fired emergency electrical generator.

4.1 Application Chronology

October 3, 2005	Application received for pre-permit construction
October 18, 2005	Pre-construction approval granted
October 31, 2005	Application determined complete
December 15, 2005	Additional information received
December 22, 2005	Proposed permit issued for public comment

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

Emergency generator
Manufacturer: Caterpillar
Model: 3406
Rated heat input capacity: 320 kW
Fuel type: No. 2 fuel oil

Portable ready-mix plant
Manufacturer: Con-E-Co
Model: Lo Pro-12
Max. hourly throughput: 300 cubic yards per hour

Baghouse
Manufacturer: Con-E-Co
Model No.: 14-23/PS-980

5.2 Emissions Inventory

Emissions from the concrete batch plant for the following sources are based on AP-42 emission factors, Table 11.12-4, August 2005, and operating hours of ten hours per day:

- Aggregate to bin
- Sand to bin
- Hopper loading

Emissions from the concrete batch plant for the following sources are based on manufacturer's data and operating hours of ten hours per day:

- Cement silo filling
- Fly ash silo filling

- Batcher vent (cement and fly ash)
- Mix loading

Emission estimates for the emergency generator are based on AP-42 emission factors, 10 hours per day (per the December 15, 2005 additional information letter), and 500 hours per year of operation. HAP emission estimates are shown in Appendix B.

Table 5.1 Emission Inventory of Criteria Pollutants and Chromium 6+ (Chr6)

Source	PM_{10}[a]			Nitrogen Oxides		Sulfur Dioxide		Carbon Monoxide		VOC[b]		Chr6[f]	
	(lb/hr)[c]	(lb/day)[d]	(T/yr)[e]	(lb/hr)[c]	(T/yr)[e]	(lb/hr)[c]	(T/yr)[e]	(lb/hr)[c]	(T/yr)[e]	(lb/hr)[c]	(T/yr)[e]	(lb/hr)[c]	(T/yr)[e]
Concrete batch plant, point sources	2.36	23.6	4.3	----	----	----	----	----	----	----	----	1.1E-6	2.0E-6
Concrete batch plant, fugitives	0.67	6.7	1.2	----	----	----	----	----	----	----	----	----	----
Emergency generator	0.38	1.0	0.1	6.49	1.6	0.91	0.2	8.04	2.0	0.92	0.2		
Total:	3.41	31.3	5.6	6.49	1.6	0.91	0.2	8.04	2.0	0.92	0.2	1.1E-6	2.0E-6

a) Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
b) Volatile Organic Compounds
c) Pounds per hour
d) Pounds per day
e) Tons per year
f) Chromium 6+

Table 5.2 shows the uncontrolled potential to emit for the concrete batch plant for AIRS facility classification purposes.

Table 5.2 Potential To Emit (for facility classification purposes)

Source	PM_{10}[a]		Nitrogen Oxides		Sulfur Dioxide		Carbon Monoxide		VOC[b]	
	(lb/hr)[c]	(T/yr)[d]	(lb/hr)[c]	(T/yr)[d]	(lb/hr)[c]	(T/yr)[d]	(lb/hr)[c]	(T/yr)[d]	(lb/hr)[c]	(T/yr)[d]
Concrete batch plant, point sources	77.28	332	----	----	----	----	----	----	----	----
Emergency generator	0.38	1.6	6.49	27.9	0.91	3.9	8.04	34.6	0.92	4.0
Total:	77.66	334	6.49	27.9	0.91	3.9	8.04	34.6	0.92	4.0

a) Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
b) Volatile Organic Compounds
c) Pounds per hour
d) Tons per year

Based on this information, the facility requires permit limitations to remain below the major source threshold for PM_{10}. Therefore, this facility is classified as synthetic minor (SM).

5.3 Modeling

The ambient air impact analysis submitted, in combination with DEQ's verification analysis, demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201.....Permit to Construct Required

A PTC is required for this facility because, without limits on the potential to emit, the estimated PM_{10} emissions may cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS), and the chromium 6+ emissions may exceed the allowable increment for acceptable ambient air concentrations for carcinogens.

IDAPA 58.01.01.203.....National Ambient Air Quality Standards (NAAQS)

Air dispersion modeling demonstrated to the satisfaction of the Department that the emissions of criteria pollutants do not exceed the NAAQS. The modeling was based on operation of the concrete batch plant and associated generator of not more than 10 hours per day, which is a permit condition. Because the dispersion modeling predicts that the 24-hour PM_{10} emissions are close to the 24-hour NAAQS for PM_{10}, a daily PM_{10} emissions limit was established for the plant and generator combined.

2.3 Emissions Limits

The PM_{10} emissions from the concrete batch plant, including PM_{10} emissions from the generator, shall not exceed 31.3 lb/day.

2.5 Hours of Operation

The concrete batch plant, including the generator, shall not operate more than ten hours per day.

Because the air dispersion modeling showed that the estimated PM_{10} emissions exceeded the allowable increment for nonattainment areas, a permit condition was written which prohibits this facility from operating in any nonattainment area in the state. An air quality permit to construct application may be submitted which requests the ability to locate within a PM_{10} nonattainment area.

2.13 Nonattainment Areas

The permittee shall not locate the concrete batch plant in any PM_{10} nonattainment area. Norm's Utility Contractor, Inc. may submit an air quality permit to construct application which requests the ability to locate within a PM_{10} nonattainment area.

For any other area in the state, a permit condition was written which allows relocating the equipment in accordance with the following condition:

2.14 Relocation

All existing portable equipment shall be registered. At least 10 days prior to relocation of any equipment covered by this permit, the permittee shall submit a scaled plot plan and a complete Portable Equipment Registration and Relocation Form (available on DEQ website at: www.state.id.us/deq/air/equip_relocat.htm), in accordance with IDAPA 58.01.01.500, to the following address:

PERF Processing Unit
DEQ - Air Quality
1410 N. Hilton
Boise, ID 83706-1255

IDAPA 58.01.01.210 ..... Demonstration of Preconstruction Compliance with Toxic Standards

The facility's estimated toxic air pollutant (TAP) emissions from the concrete batch plant and the generator are shown in Appendix B. The TAP emissions estimates are less than the corresponding screening level or were modeled to demonstrate that they would not exceed the applicable acceptable ambient concentration. The hours of operation are limited to 10 hours per day, which inherently limits the production rate and corresponding estimated TAP emissions.

IDAPA 58.01.01.625 ..... Visible Emissions

Emissions from point sources are limited to 20% as follows:

2.4 Opacity Limit

Emissions emanating from any stack, vent, or other functionally equivalent opening shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required in IDAPA 58.01.01.625. Opacity shall be determined using the procedures contained in IDAPA 58.01.01.625.

IDAPA 58.01.01.650-651 .....Rules for the Control of Fugitive Dust

This rule has been incorporated as a permit condition to require control of fugitive dust for the concrete batch plant.

2.6 Reasonable Control of Fugitive Emissions

All reasonable precautions shall be taken to prevent PM from becoming airborne as required in IDAPA 58.01.01.651. In determining what is reasonable, considerations will be given to factors such as the proximity of dust-emitting operations to human habitations and/or activities and atmospheric conditions that might affect the movement of particulate matter. Some of the reasonable precautions include, but are not limited to, the following:

- *Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of lands.*
- *Application, where practical, of asphalt, oil, water or suitable chemicals to, or covering of dirt roads, material stockpiles, and other surfaces which can create dust.*
- *Installation and use, where practical, of hoods, fans and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations.*
- *Covering, when practical, of open-bodied trucks transporting materials likely to give rise to airborne dusts.*
- *Paving of roadways and their maintenance in a clean condition, where practical.*
- *Prompt removal of earth or other stored material from streets, where practical.*

IDAPA 58.01.01.209.05…….Permit to Construct Procedures for Tier I Sources.

The estimated emissions of PM_{10}, NO_x, SO_2, CO, VOC, and HAP from this facility do not exceed any major source threshold. Therefore, this is not a Tier I source.

5.5 Permit Conditions Review

This section describes the monitoring and recordkeeping permit conditions written in this permit to construct.

To ensure that the emission estimates, PM_{10} emission limit, and the opacity limit are not exceeded and that the fugitive dust control is effective, the following permit conditions have been established:

2.7 Operations and Maintenance Manual Requirements

Within 60 days after startup, the permittee shall have developed an O&M manual for the air pollution control device describing the procedures that shall be followed to comply with General Provision 2 and the air pollution control device requirements contained in this permit. The manual shall remain onsite at all times and shall be made available to DEQ representatives upon request.

2.8 Monitoring Equipment

The permittee shall immediately implemented a strategy or strategies to control fugitive dust emissions whenever:

2.8.1 Visible fugitive emissions are greater than 20% from any transfer point. For the purposes of this permit condition, transfer points include, but are not limited to, the following: transfer of sand and aggregate to respective weight bins/hoppers or storage bins/hoppers; transfer of sand and aggregate from respective weight bins/hoppers or storage bins/hoppers to a conveyor; transfer of sand and aggregate from a conveyor to the mix truck; transfer of cement from its storage silo to the mix truck.

2.8.2 Transfer point control strategies include, but are not limited to, the following: limit drop heights such that there is a homogeneous flow of material; install, operate, and maintain water spray bars to control fugitive dust emissions at transfer points on conveyors.

2.8.3 Visible fugitive emissions from wind erosion on stockpiles exceeds 20% opacity for a period or periods aggregating more that one minute in any 60-minute period.

2.8.4 Stockpile wind erosion control strategies include, but are not limited to, the following: limit the height of the stockpiles; limit the disturbance of stockpiles; apply water or a chemical dust suppressant onto the surface of the stockpile.

2.8.5 Visible fugitive emissions from vehicle traffic on any paved or unpaved roads within the facility boundary of the concrete batch plant exceeds 20% opacity for a period or periods aggregating more than one minute in any 60-minute period.

2.8.6 Visible fugitive emissions control strategies for vehicle traffic on paved and unpaved roads within the facility boundary include, but are not limited to, the following: limit vehicle traffic; limit vehicle speed; apply water or a chemical dust suppressant to the surface of the road; apply gravel to the surface of unpaved roads; and sweep or use water sprays to clean the surface of a paved road.

2.9 Pressure Drop Across Air Pollution Control Device

The pressure drop across the air pollution control device shall be maintained within manufacturer and O&M manual specifications. Documentation of both manufacturer and O&M manual operating pressure drop specifications shall remain onsite at all times and shall be made available to DEQ representatives upon request.

2.10 Visible Emission Inspection

The permittee shall conduct a monthly facility-wide inspection of potential sources of visible emissions, during daylight hours and under normal operating conditions. The inspection shall consist of a see/no see evaluation for each potential source of visible emissions. If any visible emissions are present from any point of emission, the permittee shall either take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded when conducting the opacity test. If opacity is greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period, the permittee shall take all necessary corrective action and report the exceedance in its annual compliance certification and in accordance with IDAPA 58.01.01.130-136. The permittee shall maintain records of the results of each visible emission inspection and each opacity test when conducted. The records shall include, at a minimum, the date and results of each inspection and test and a description of the following: the permittee's assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken

2.11 Operating Parameters

The following operating parameters shall be monitored and recorded when operating. A compilation of the most recent two years of records shall be kept onsite and shall be made available to DEQ representatives upon request.

- *Pressure drop reading across the air pollution control device once per week*
- *Concrete production in cubic yards per day and cubic yards per month*
- *Daily hours of operation of the concrete batch plant*
- *Daily hours of operation of the generator*

2.12 Reasonable Control Measures

The permittee shall conduct a quarterly facility-wide inspection of potential sources of fugitive emissions, during daylight hours and under normal operating conditions to ensure that the methods used to reasonably control fugitive emissions are effective. If fugitive emissions are not being reasonably controlled, the permittee shall take corrective action as expeditiously as practicable. The permittee shall maintain records of the results of each quarterly fugitive emissions inspection. The records shall include, at a minimum, the date of each inspection and a description of the following: the permittee's assessment of the conditions existing at the time fugitive emissions were present (if observed), any corrective action taken in response to the fugitive emissions, and the date the corrective action was taken.

6. PERMIT FEES

An application fee of $1,000 is required in accordance with IDAPA 58.01.01 224. The application fee was received by DEQ on October 3, 2005. A permit processing fee of $2,500.00 is required in accordance with IDAPA 58.01.01 225 because the total increase in emissions is between one and ten tons per year. This facility is not a major facility and is not subject to registration fees.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	1.6	0	1.6
SO_2	0.2	0	0.2
CO	2.0	0	2.0
PM_{10}	5.6	0	5.6
VOC	0.2	0	0.2
TAPS/HAPS	0.2	0	0.18
Total:	9.8	0	**9.8**
Fee Due	**$ 2,500.00**		

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

The proposed permit for public comment was provided electronically to the DEQ Coeur d'Alene Regional Office for review on December 22, 2005.

7.2 Facility Review of Draft Permit

A draft permit was not requested by Norm's Utility Contractor, Inc. for review. The proposed permit for public comment is being issued which will be reviewed by the facility.

7.3 Public Comment

An opportunity for public comment period on the PTC application was provided from 11/04/05 – 12/6/05 in accordance with IDAPA 58.01.01.209.01.c. During this time, there was a request for a public comment period on DEQ's proposed action. A proposed PTC for public comment has been prepared and a public comment period is being held.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that Norm's Utility Contractor, Inc. be issued a proposed PTC No. P-050124 for public comment for the portable concrete ready-mix plant. The project does not involve PSD requirements.

CZ/sd Permit No. P-050124

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Appendix A

AIRS Information

P-050124

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: **Norm's Utility Contractor, Inc.**
Facility Location: **Portable**
AIRS Number: **777-00371**

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	B							U
PM_{10}	SM							U
PT (Particulate)	SM							U
VOC	B							U
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

Emissions Inventory

P-050124

HTS PTC Application for Portable Ready Mix Plant
Criteria Pollutant Emission Summary

Sources	Emission Rate (ton/year)					
	PM-10	NO_x	SO_2	CO	VOC	Lead
Point Sources						
Ready Mix Generator	0.10	1.62	0.23	2.01	0.23	
Aggregate to bin	1.70					
Sand to bin	0.38					
Hopper loading	2.08					
Cement Silo Filling	0.04					
Fly Ash Silo Filling	0.04					
Batcher Vent (Cement & Fly Ash)	0.02					1.68E-07
Mix Loading	0.04					9.07E-08
Rock Crusher Generator	0.63	21.77	3.67	4.99	0.64	
Rock Crusher	8.30					
Total	13.33	23.39	3.90	7.00	0.87	2.59E-07
Modeling Threshold	1.0	1.0	1.0	na	na	0.6
Modeling Required	**Yes**	**Yes**	**Yes**			No
Fugitive Sources						
Aggregate Storage	1.06					
Sand Storage	0.23					
Total	**14.6**	**23.4**	**3.9**	**7.0**	**0.9**	**2.59E-07**

Sources	Emission Rate (lb/hr)					
	PM-10	NO_x	SO_2	CO	VOC	Lead
Point Sources						
Emergency Generator	0.38	6.49	0.91	8.04	0.92	
Aggregate to bin	0.93					
Sand to bin	0.21					
Hopper loading	1.14					
Cement Silo Filling	0.02					
Fly Ash Silo Filling	0.02					
Batcher Vent (Cement & Fly Ash)	0.01					5.99E-08
Mix Loading	0.02					3.23E-08
Rock Crusher Generator	1.02	34.82	5.87	7.98	1.02	
Rock Crusher	13.25					
Total	17.00	41.31	6.78	16.02	1.94	9.22E-08
Modeling Threshold	0.2	na	0.2	14.0	na	na
Modeling Required	**Yes**		**Yes**	**Yes**		
Fugitive Sources						
Aggregate Storage	0.55					
Sand Storage	0.12					
Total	**17.7**	**41.3**	**6.8**	**16.0**	**1.9**	**9.2E-08**

HTS PTC Application for Portable Ready Mix Plant
Summary of HAP Emissions

Hazardous Air Pollutants: Organic

Generator Pollutants	CAS Number	EF lb/MMBtu	PTE Ready Mix Generator lb/hr	PTE Rock Crusher Generator lb/hr	PTE Total lb/hr	PTE Total t/yr	IDAPA 58.01.01.585/586 EL (lb/hr)	Comparison
Benzene	71-43-2	9.33E-04	2.94E-03	7.70E-03	1.06E-02	2.66E-03	8.00E-04	**Exceeds**
Toluene	108-88-3	4.09E-04	1.29E-03	2.79E-03	4.08E-03	1.02E-03	2.50E+01	Below
Xylenes	1330-20-7	2.85E-04	8.96E-04	1.91E-03	2.81E-03	7.03E-04	2.90E+01	Below
Propylene	115-07-1	2.58E-03	8.13E-03	2.77E-02	3.58E-02	8.95E-03	NA	
1,3-Butadiene	106-99-0	3.91E-05	1.23E-04		1.23E-04	3.06E-05	2.40E-05	**Exceeds**
Formaldehyde	50-00-0	1.18E-03	3.72E-03	7.83E-04	4.50E-03	1.13E-03	5.10E-04	**Exceeds**
Acetaldehyde	75-07-0	7.67E-04	2.42E-03	2.50E-04	2.67E-03	6.67E-04	3.00E-03	Below
Acrolein	107-02-8	9.25E-05	2.91E-04	7.82E-05	3.70E-04	9.24E-05	1.70E-02	Below
Polycyclic aromatic hydrocarbons (PAH)								
Naphthalene	91-20-3	8.48E-05	2.67E-04	1.29E-03	1.56E-03	3.89E-04	3.33E+00	Below
Acenaphthylene		5.06E-06	1.59E-05	9.16E-05	1.07E-04	2.69E-05		
Acenaphthene		1.42E-06	4.47E-06	4.64E-05	5.09E-05	1.27E-05		
Fluorene		2.92E-05	9.20E-05	1.27E-04	2.19E-04	5.47E-05		
Phenanthrene		2.94E-05	9.26E-05	4.05E-04	4.97E-04	1.24E-04		
Anthracene		1.87E-06	5.89E-06	1.22E-05	1.81E-05	4.52E-06		
Fluoranthene		7.61E-06	2.40E-05	4.00E-05	6.40E-05	1.60E-05		
Pyrene		4.78E-06	1.51E-05	3.68E-05	5.19E-05	1.30E-05		
Benzo(a)anthracene	IDAPA PAH	1.68E-06	5.29E-06	6.17E-06	1.15E-05	2.87E-06		
Chrysene	IDAPA PAH	3.53E-07	1.11E-06	1.52E-05	1.63E-05	4.07E-06		

HTS PTC Application for Portable Ready Mix Plant

Summary of HAP Emissions

Benzo(b)fluoranthene	IDAPA PAH	9.91E-08	3.12E-07	1.10E-05	1.13E-05	2.83E-06		
Benzo(k)fluoranthene	IDAPA PAH	1.55E-07	4.88E-07	2.16E-06	2.65E-06	6.63E-07		
Benzo(a)pyrene	IDAPA PAH	1.88E-07	5.92E-07	2.55E-06	3.14E-06	7.85E-07		
Indeno(1,2,3-cd)pyrene	IDAPA PAH	3.75E-07	1.18E-06	4.11E-06	5.29E-06	1.32E-06		
Dibenz(a,h)anthracene	IDAPA PAH	5.83E-07	1.84E-06	3.43E-06	5.27E-06	1.32E-06		
Benzo(g,h,I)perylene		4.89E-07	1.54E-06	5.51E-06	7.06E-06	1.76E-06		
IDAPA PAH Total			1.08E-05	4.46E-05	5.54E-05		9.10E-05	Below

Hazardous Air Pollutants: Metal

Pollutant	CAS Number	AP-42 EF (lb/ton concrete)				Controlled PTE (lb/hr)				Total lb/hr	IDAPA 58.01.01.586/586 EL (lb/hr)	Comparison
		Silo with filter	Ash with filter	Batcher with filter	Mix Loading	Silo	Ash	Batcher	Mix Loading			
Arsenic	7440-38-2	1.68E-06	1.00E-06	2.32E-07	3.04E-06	1.24E-07	1.10E-08	1.96E-08	2.57E-07	4.11E-07	1.50E-06	Below
Beryllium	440-41-7	1.79E-08	9.04E-08	ND	2.44E-07	1.32E-09	9.90E-10	0.00E+00	2.06E-08	2.30E-08	2.80E-05	Below
Cadmium	7440-43-9	2.34E-07	1.98E-08	1.18E-08	3.42E-08	1.72E-08	2.17E-10	9.98E-10	2.89E-09	2.13E-08	3.70E-06	Below
Chromium	7440-47-3	2.52E-07	1.22E-06	1.42E-06	1.14E-05	1.86E-08	1.34E-08	1.20E-07	9.64E-07	1.12E-06	5.60E-07	Exceeds
Lead		7.36E-07	5.20E-07	3.82E-07	3.62E-06	5.42E-08	5.69E-09	3.23E-08	3.06E-07	3.98E-07		
Manganese	7439-96-5	2.02E-04	2.56E-07	6.12E-05	6.12E-05	1.49E-05	2.80E-09	5.18E-06	5.18E-06	2.52E-05	6.70E-02	Below
Nickel	7440-02-0	1.76E-05	2.28E-06	3.28E-06	1.19E-05	1.30E-06	2.50E-08	2.77E-07	1.01E-06	2.61E-06	2.70E-05	Below
Phosphorous	7723-14-0	1.18E-05	3.54E-06	2.02E-05	3.84E-05	0.00E+00	3.88E-08	1.71E-06	3.25E-06	5.00E-06	7.00E-03	Below
Selenium	7782-49-2	ND	7.24E-08	ND	2.62E-06	0.00E+00	7.93E-10	0.00E+00	2.22E-07	2.22E-07	1.30E-02	Below

HTS PTC Application for Portable Ready Mix Plant
Emergency Backup Power Potential to Emit - Ready Mix Plant

Assumptions:

Rated Capacity	320.0 kW
	23 gal/hr max throughput rate
	500 hrs max operation per year
	453.6 grams/lb

Stack Parameters:

Height	13 ft
Diameter	8 inches
Exhaust Flow	2765 acfm
Gas Temp	972 °F

Fuel:

Diesel[a]	137,000 Btu/gal
(# 2 Fuel Oil)	0.5 wt% sulfur (max limit)

Calculations

Criteria Pollutants

Pollutant	Manuf. EF[b] g/kW-hr	AP-42 EF[c] lb/MMBtu	PTE lb/hr	PTE lb/yr	PTE t/yr
NOx	9.2		6.49	3,245	1.62
CO	11.4		8.04	4,021	2.01
PM-10	0.54		0.38	190	0.10
SO_2[c]		0.29	0.91	457	0.23
VOC	1.3		0.92	459	0.23

Notes:
g/kW-hr = gram per kilowatt-hour
lb/MMBtu = pound per million british thermal unit

Hazardous Air Pollutants[d]

Pollutant	CAS Number	EF lb/MMBtu	PTE lb/hr	PTE lb/yr	PTE t/yr	IDAPA 58.01.01.585/586 EL (lb/hr)	Comparison
Benzene	71-43-2	8.33E-04	2.94E-03	1.47E+00	7.35E-04	8.00E-04	**Exceeds**
Toluene	108-88-3	4.09E-04	1.29E-03	6.44E-01	3.22E-04	2.50E+01	Below
Xylenes	1330-20-7	2.85E-04	8.98E-04	4.49E-01	2.25E-04	2.90E+01	Below
Propylene	115-07-1	2.58E-03	8.13E-03	4.06E+00	2.03E-03	NA	
1,3-Butadiene	106-99-0	3.91E-05	1.23E-04	6.16E-02	3.08E-05	2.40E-06	**Exceeds**
Formaldehyde	50-00-0	1.18E-03	3.72E-03	1.86E+00	9.30E-04	5.10E-04	**Exceeds**
Acetaldehyde	75-07-0	7.67E-04	2.42E-03	1.21E+00	6.04E-04	3.00E-03	Below
Acrolein	107-02-8	9.25E-05	2.91E-04	1.46E-01	7.29E-05	1.70E-02	Below
Polycyclic aromatic hydrocarbons (PAH)							
Naphthalene	91-20-3	8.48E-05	2.67E-04	1.34E-01	6.68E-05	3.33E+00	Below
Acenaphthylene		5.06E-06	1.59E-05	7.97E-03	3.99E-06		
Acenaphthene		1.42E-06	4.47E-06	2.24E-03	1.12E-06		
Fluorene		2.92E-05	9.20E-05	4.60E-02	2.30E-05		
Phenanthrene		2.94E-05	9.26E-05	4.63E-02	2.32E-05		
Anthracene		1.87E-06	5.89E-06	2.95E-03	1.47E-06		
Fluoranthene		7.61E-06	2.40E-05	1.20E-02	5.99E-06		
Pyrene		4.78E-06	1.51E-05	7.53E-03	3.77E-06		
Benzo(a)anthracene	IDAPA PAH	1.68E-06	5.29E-06	2.65E-03	1.32E-06		
Chrysene	IDAPA PAH	3.53E-07	1.11E-06	5.56E-04	2.78E-07		
Benzo(b)fluoranthene	IDAPA PAH	9.91E-08	3.12E-07	1.56E-04	7.81E-08		
Benzo(k)fluoranthene	IDAPA PAH	1.55E-07	4.88E-07	2.44E-04	1.22E-07		
Benzo[a]pyrene	IDAPA PAH	1.88E-07	5.92E-07	2.96E-04	1.48E-07		
Indeno(1,2,3-cd)pyrene	IDAPA PAH	3.75E-07	1.18E-06	5.91E-04	2.95E-07		
Dibenz(a,h)anthracene	IDAPA PAH	5.83E-07	1.84E-06	9.19E-04	4.59E-07		
Benzo[g,h,i]perylene		4.89E-07	1.54E-06	7.70E-04	3.85E-07		
IDAPA PAH Total			1.09E-05			9.10E-05	Below

Notes

[a] Heat Value from the United States Environmental Protection Agency (EPA) AP-42, Appendix A, Typical Parameters of Various Fuels, (From EPA website, August 2005)
Sulfur content from Idaho Administrative Procedures Act (IDAPA) Chapter 58.01.01.728.
[b] Manufacture emission factors provided by Caterpillar fax to HTS, August 2005
[c] Criteria pollutant emission factors from EPA AP-42, Table 3.3-1 (August 2005). Total TOC assumed to be equal to VOC.
[d] Hazardous air pollutant emission factors from EPA AP-42, Table 3.3-2 (August 2005)

HTS PTC Application for Portable Ready Mix Plant

Process Potential to Emit.

Assumptions:

Max Throughput	300	yd^3/hr
Hours of Operation	10	hrs/day
	365	days/week
	3650	hrs/yr
Concrete Mix[a]	4024	lb/yd3
	1865	lb coarse aggregate
	1428	lb sand
	491	lb cement
	73	lb fly ash
	20	gal water

Dust Collector Parameters[b]:

Silo Baghouse	0.07	lb/yd^3 dust collection
	99.9	% efficiency
Batcher Vent (Truck Mix)	0.04	lb/yd^3 dust collection
	99.9	% efficiency.
Batcher Vent (Central Mix)	0.07	lb/yd^3 dust collection
	99.9	% efficiency

Calculations

Criteria Pollutants[c]

Process	PM-10 AP-42 EF	PM Manufacturer - EF	Uncontrolled PTE			Controlled PTE		
	lb/yd^3	lb/yd^3	lb/hr	lb/yr	t/yr	lb/hr	lb/yr	t/yr
Aggregate to bin	0.0031		0.93	3,395	1.70	0.93	3,395	1.70
Sand to bin	0.0007		0.21	767	0.38	0.21	767	0.38
Hopper loading	0.0038		1.14	4,161	2.08	1.14	4,161	2.08
Cement Silo Filling		0.07	21.00	76,650	38.33	0.02	77	0.04
Fly Ash Silo Filling		0.07	21.00	76,650	38.33	0.02	77	0.04
Batcher Vent (Cement & Fly Ash)		0.04	12.00	43,800	21.90	0.01	44	0.02
Mix Loading		0.07	21.00	76,650	38.33	0.02	77	0.04
Total			77.28	282972.00	141.04	2.36	8595.75	4.30

Hazardous Air Pollutants[d]

Pollutant	CAS Number	AP-42 EF (blank material)				Controlled PTE (lb/hr)				Total	IDAPA 58.01.01 585/586 EL (lb/hr)	Comparison
		Silo	Ash[e]	Batcher	Mix	Silo	Ash	Batcher	Mix Loading	lb/hr		
Arsenic	7440-38-2	1.68E-06	1.00E-06	2.32E-07	3.04E-06	1.24E-07	1.10E-08	1.96E-08	2.57E-07	4.11E-07	1.50E-06	Below
Beryllium	440-41-7	1.79E-08	9.04E-08	ND	2.44E-07	1.32E-09	9.90E-10		2.06E-08	2.30E-08	2.80E-05	Below
Cadmium	7440-43-9	2.34E-07	1.98E-08	1.18E-08	3.42E-08	1.72E-08	2.17E-10	9.98E-10	2.89E-09	2.13E-08	3.70E-06	Below
Chromium	7440-47-3	2.52E-07	1.22E-06	1.42E-06	1.14E-05	1.86E-08	1.34E-08	1.20E-07	9.64E-07	1.12E-06	5.60E-07	Exceeds
Lead		7.36E-07	5.20E-07	3.82E-07	3.62E-06	5.42E-08	5.69E-09	3.23E-08	3.06E-07	3.98E-07		
Manganese	7439-96-5	2.02E-04	2.56E-07	6.12E-05	6.12E-05	1.49E-05	2.80E-09	5.18E-06	5.18E-06	2.52E-05	6.70E-02	Below
Nickel	7440-02-0	1.76E-05	2.28E-06	3.28E-06	1.19E-05	1.30E-06	2.50E-08	2.77E-07	1.01E-06	2.61E-06	2.70E-05	Below
Phosphorous	7723-14-0	1.18E-05	3.54E-06	2.02E-05	3.84E-05		3.88E-08	1.71E-06	3.25E-06	5.00E-06	7.00E-03	Below
Selenium	7782-49-2	ND	7.24E-08	ND	2.62E-06		7.93E-10		2.22E-07	2.22E-07	1.30E-02	Below

Notes

[a] *Cement mix parameters provided in EPA AP-42, Table 11-12.6, August 2006*

[b] *Dust collection system parameters supplied by CON-E-CO, Concrete Equipment Company, Fax from Morse Bros., August 2005*

[c] *Criteria pollutant emission factors from manufacturer, CON-E-CO and EPA AP-42, Table 11.12-6 (August 2006). Total PM assumed to be equal to PM-10 if PM-10 emission factor not given. All loads assumed to be central mix since this is the most conservative*

[d] *Hazardous air pollutant emission factors from EPA AP-42, Table 11.12-6, August 2006.*

[e] *Ash emissions factors are for with a fabric filter since no emission factors are available for uncontrolled emissions.*

HTS PTC Application for Portable Ready Mix Plant
Aggregate Handling and Storage Piles Potential to Emit Calculations

Assumptions:

Mean Wind Speed[a], U	9.74	mph
Moisture Content, M	2.5	% Coarse aggregate
	6	% Sand
Particle Size Multiplier (<10μm), k	0.35	
Hours Operation	3650	hrs/yr
1 yd^3 concrete[b]	4024	lbs
	46.4	% Coarse aggregate
	35.5	% Sand

Calculations

PM-10 EF[c] = k*(0.0032)*(U/5)1.3/(M/2)1.4
= 0.002 lb / t coarse aggregate
= 0.001 lb / t sand

Emissions based on 300 yd^3/hr concrete production rate:

agg. max rate	280.1 t/hr		sand max rate	214.3 t/hr
PM-10 =	**0.55 lb/hr**		**=**	**0.12 lb/hr**
PM-10 =	**2.73E-04 t/hr**		**=**	**6.13E-05 t/hr**

Emissions based on max year throughput rate and storage capacity:

agg. max rate	1,022,257 t/yr		sand max rate	782,115 t/yr
agg. storage	60,000 t		sand storage	22,000 t
total agg.	1,082,257 t/yr		total sand	804,115 t/yr
PM-10 =	**2,110.28 lb/yr**		**=**	**460.29 lb/yr**
PM-10 =	**1.06 t/yr**		**=**	**0.23 t/yr**

[a] *Wind Speed provide by IDEQ, Email August 2005, Spokane Met data 1987-1991*
[b] *EPA-AP-42, Table 11.12-2, definition of concrete mixture (August 2005)*
[c] *EPA AP-42, Equation 13.2.4-1 (August 2005)*

HTS PTC Application for Portable Ready Mix Plant
Grain Loading Standard - Ready Mix Generator

Source Information

Manufacturer:	CAT
Model No:	3406
Fuel:	#2 Fuel Oil

Generator Data

PM Emission Rate:	0.38 lb/hr

Exit Gas Flow Rate Calculation

Exit flow rate:[a] = 850 dcfm (at 32 F and 29.98 in Hg)
Exit flow rate corected: = ACFM(Std T(°R)/Stack T(°R))(Stack P (inHg)/Std P(inHg))
Exit flow rate corected: = 914
Exit flow rate (3% O2): = 1068 dscfm

Grain loading

Calculated: #2 Fuel Oil	0.04 gr/dscf
IDAPA 58.01.01.677	0.05 gr/dscf

Result:	**Meet the grain loading standard:**	**Yes**

[a] *Manufacture information, August 2005*

Appendix C

Modeling Review

P-050124

M E M O R A N D U M DRAFT

DATE: December 18, 2005

TO: Carole Zundel, Permit Writer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT NUMBER: P-050124

SUBJECT: Modeling Review for Norm's Utility Contractor, Inc. Permit to Construct Application for their facility near Rathdrum, Idaho.

1.0 SUMMARY

Norm's Utility Contractor, Inc. (Norm's) submitted a Permit to Construct (PTC) application for a new concrete batch plant located near Rathdrum, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the facility were submitted in support of a permit application to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02).

A technical review of the submitted air quality analyses was conduced by DEQ. The submitted modeling analyses in combination with DEQ's staff analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the proposed facility were below significant contribution levels (SCLs); or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all receptor locations. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
Discussions with the Norm's consultant indicated a rock crushing plant was also present at the site. Impacts of the crusher were not included in the modeling assessment.	To assure compliance with NAAQS, aggressive control of fugitive emissions should be required.
Emission controls were needed to demonstrate compliance with the TAP Chromium.	As per IDAPA 58.01.01.210.08.c, TAP emission limits are required in the permit if controlled emissions were used in the modeling analyses to demonstrate compliance.
The batch plant may not be located in any PM_{10} non-attainment areas	Impacts from the facility exceed PM_{10} significant contribution levels.

2.0 BACKGROUND INFORMATION

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The proposed Norm's facility is located in Kootenai County, designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}). There are no Class I areas within 10 kilometers of the facility.

2.1.2 Significant and Full Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources at the facility exceed the significant contribution levels (SCLs) of IDAPA 58.01.01.006.91, then a full impact analysis is necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS) listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

2.2 Background Concentrations

Background concentrations were revised for all areas of Idaho by DEQ in March 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Background concentrations used in these analyses are listed in Table 3. Rural/agricultural default values were used for background concentrations. PM_{10}, SO_2, and NO_2 were the only pollutants included in the modeling analyses, since emissions of other criteria pollutants were below modeling applicability thresholds used by DEQ. The SO_2 annual emissions rate was also below the modeling applicability threshold.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
PM_{10}[e]	Annual	1.0	50[f]	Maximum 1st highest[g]
	24-hour	5.0	150[h]	Maximum 6th highest[i]
Carbon monoxide (CO)	8-hour	500	10,000[j]	Maximum 2nd highest[g]
	1-hour	2,000	40,000[j]	Maximum 2nd highest[g]
Sulfur Dioxide (SO_2)	Annual	1.0	80[f]	Maximum 1st highest[g]
	24-hour	5	365[j]	Maximum 2nd highest[g]
	3-hour	25	1,300[j]	Maximum 2nd highest[g]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[f]	Maximum 1st highest[g]
Lead (Pb)	Quarterly	NA	1.5[h]	Maximum 1st highest[g]

a. IDAPA 58.01.01.006.91
b. Micrograms per cubic meter
c. IDAPA 58.01.01.577 for criteria pollutants
d. The maximum 1st highest modeled value is always used for significant impact analysis
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
f. Never expected to be exceeded in any calendar year
g. Concentration at any modeled receptor
h. Never expected to be exceeded more than once in any calendar year
i. Concentration at any modeled receptor when using five years of meteorological data
j. Not to be exceeded more than once per year

1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

Table 3. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration (µg/m³)[a]
PM_{10}	24-hour	73
	annual	26
Sulfur dioxide (SO_2)	3-hour	34
	24-hour	26
Nitrogen dioxide (NO_2)	annual	17

[a.] Micrograms per cubic meter

3.0 MODELING IMPACT ASSESSMENT

3.1 Modeling Methodology

Table 4 provides a summary of the modeling parameters used in analyses submitted by Norm's. CH2M Hill (CH2M), Norm's consultant, performed the air quality analyses.

Table 4. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Additional Description
Model	ISCST3	ISCST3 version 02035.
Meteorological data	1987-1991	Spokane, Washington, surface and upper air data
Terrain	Considered	Elevation data from digital elevation model (DEM) files
Building downwash	Considered	The building profile input program (BPIP) was used
Receptor grid	Grid 1	25-meter spacing along boundary out to 100 meters
	Grid 2	50-meter spacing out to 500 meters
	Grid 3	100-meter spacing out to 500 meters

3.1.1 Modeling protocol

A protocol was submitted to and approved by DEQ prior to submission of the application. Modeling was conducted using methods and data presented in the protocol and the *State of Idaho Air Quality Modeling Guideline.*

3.1.2 Model Selection

ISCST3 was used by CH2M to conduct the ambient air analyses. ISCST3 is appropriate for this facility since all ambient air locations are outside of building recirculation cavities. ISCST3 accounts for building downwash, but does not calculate concentrations for areas within recirculation cavities.

3.1.3 Meteorological Data

Site-specific meteorological data are not available for the proposed facility site near Rathdrum. Spokane, Washington airport is the closest area where model-ready surface and upper air meteorological data are available. These data were used in the modeling analyses.

PCRAMMET, the meteorological data preprocessor for ISCST-3, occasionally generates unrealistically low mixing heights as a result of interpolation algorithms used with the twice daily measured mixing heights. The CH2M and DEQ verification modeling analyses were conducted using meteorological data corrected for low mixing heights. All mixing height values below 50 meters were replaced with a value of 50 meters.

3.1.4 Terrain Effects

The modeling analyses submitted considered elevated terrain, with elevations obtained from USGS digital elevation model (DEM) files. Elevations of terrain were not thoroughly reviewed by DEQ since review of a topographic map indicates the area is nearly flat for dispersion modeling purposes, especially considering that maximum impacts are located very near the emission sources.

3.1.5 Facility Layout

DEQ verified proper identification of the facility boundary and buildings on the site by comparing the modeling input to a facility plot plan submitted with the application and aerial photographs of the area.

3.1.6 Building Downwash

Plume downwash effects caused by structures proposed for the facility were accounted for in the modeling analyses. The Building Profile Input Program (BPIP) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters for ISCST3.

3.1.7 Ambient Air Boundary

The property boundary was used as the ambient air boundary for the modeling analyses submitted by Norm's. DEQ assumed reasonable measures would be taken to ensure the general public are excluded from access to the property.

3.1.8 Receptor Network

The receptor grids used by CH2M met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*. DEQ determined the receptor grid was adequate to reasonably resolve maximum modeled concentrations.

3.2 Emission Rates

Emissions rates used in the dispersion modeling analyses submitted by the applicant were reviewed against those in the permit application, the engineering technical memorandum, and the proposed permit. The following approach was used for DEQ verification modeling:

- All modeled emissions rates were equal to or greater than the facility's emissions calculated in the PTC application or the permitted allowable rate.
- More extensive review of modeling parameters selected was conducted when model results for specific sources approached applicable thresholds.

Table 5 lists emissions rates for sources included in the dispersion modeling analyses. CH2M included fugitive PM_{10} emissions from material handling operations (sand and aggregate to and from storage piles, and material transfers involving conveyors). However, emissions from the aggregate crushing unit were not included in the modeling analyses.

3.3 Emission Release Parameters

Table 6 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity. Values used in the analyses appeared reasonable and within expected ranges. Additional documentation /verification of these parameters were not required.

Table 5. MODELED EMISSIONS RATES

Source Id	Description	Emission Rates (lb/hr)[a]						
		PM_{10}[b]	SO_2[c]	NO_x[d]	ben[e]	1,3but[f]	Form[g]	Chr6[h]
SILO1	Cement Silo Filling	0.020 0.014[i]	0.0	0.0	0.0	0.0	0.0	1.86E-8
SILO2	Fly Ash Silo Filling	0.020 0.014[i]	0.0	0.0	0.0	0.0	0.0	1.34E-8
VENT	Batcher Vent	0.010 0.0068[i]	0.0	0.0	0.0	0.0	0.0	1.20E-7
LOAD	Mix Loading	0.020 0.014[i]	0.0	0.0	0.0	0.0	0.0	9.64E-7
GEN1	Emergency Generator	0.380 0.023[i]	0.91	0.37	2.94E-3	1.23E-4	3.72E-3	0.0
Fugitive Emissions Sources								
AGG1	Aggregrate Bin	1.14 0.73[i]	0.0	0.0	0.0	0.0	0.0	0.0
HOP1	Hopper Loading	1.14 0.73[i]	0.0	0.0	0.0	0.0	0.0	0.0

a. Pounds per hour
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
c. Sulfur dioxide
d. Oxides of nitrogen
e. Benzene
f. 1,3-butadiene
g. Formaldehyde
h. Chromium 6+
i. Annual average rate

Table 6. EMISSIONS AND STACK PARAMETERS

Release Point /Location	Source Type	Stack Height (m)[a]	Modeled Diameter (m)	Stack Gas Temp. (K)[b]	Stack Gas Flow Velocity (m/sec)[c]
SILO1	Point	13.8	0.28	293	0.001
SILO2	Point	17.1	0.28	293	0.001
VENT	Point	4.9	0.2	293	0.001
LOAD	Point	11.7	0.52	293	0.001
GEN1	Point	4	0.2	795	41.533
Volume Sources					
Release Point /Location	**Source Type**	**Release Height (m)**	**Initial Horizontal Dispersion Coefficient s_{y0} (m)**	**Initial Vertical Dispersion Coefficient s_{z0} (m)**	
AGG1	Volume	10.06	0.71	2.34	
HOP1	Volume	2.95	0.35	0.73	

a. Meters
b. Kelvin
c. Meters per second

3.4 Results for Significant and Full Impact Analyses

CH2M demonstrated compliance with NAAQS using full impact analyses. Results of preliminary significant impact analyses were not presented in the application. Results of the full impact analyses are presented in Table 7. DEQ did not perform verification modeling for annual PM_{10} and NO_2 since submitted modeling results were well below applicable NAAQS and DEQ verification modeling performed for shorter averaging periods matched submitted results.

Table 7. RESULTS OF FULL IMPACT ANALYSES

Pollutant	Averaging Period	Maximum Modeled Concentration[a] (µg/m³)[b]	Background Concentration (µg/m³)	Total Ambient Impact (µg/m³)	NAAQS[c] (µg/m³)	Percent of NAAQS
PM_{10}[d]	24-hour	70.29 (70.3)	73	143.3	150	96
	Annual	7.26	26	33.3	50	67
Sulfur dioxide (SO_2)	3-hour	20.78 (20.8)	34	54.8	1,300	4
	24-hour	11.07 (11.1)	26	37.1	365	10
Nitrogen dioxide (NO_2)	Annual	0.60	17	17.6	100	18

a. Values in parentheses are those obtained from DEQ verification modeling
b. Micrograms per cubic meter
c. National ambient air quality standards
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

3.5 Results for TAPs Analyses

Compliance with TAP increments were demonstrated by modeling uncontrolled TAP emissions (those TAPs with emissions exceeding the ELs) from the generator. Compliance with chromium6+ was demonstrated by modeling controlled emissions from various material handling operations, as per IDAPA 58.01.01.210.08. An emissions limit for chromium is needed in the permit, as per IDAPA 58.01.01.210.08.c, since impacts of controlled emissions were used to demonstrate compliance. Table 8 summarizes the ambient TAP analyses.

Table 8. RESULTS OF TAP ANALYSES

TAP	Averaging Period	Maximum Modeled Concentration[a] (µg/m³)[b]	AACC (µg/m³)	Percent of AACC
Benzene	Annual	0.00027	0.1200	0.2
1,3-Butadiene	Annual	0.00001	0.0036	0.3
Formaldehyde	Annual	0.00034	0.0770	0.4
Chromium 6+	Annual	0.00000	0.0001	<10

a. Values in parentheses are modeling results obtained by DEQ verification analyses
b. Micrograms per cubic meter
d. Meters

4.0 CONCLUSIONS

The ambient air impact analysis submitted, in combination with DEQ's verification analyses, demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.